

2. (Amended) A frame as claimed in claim 1, where the at least one electrical structure is one of a ground wiring connection, a power wiring connection, and a capacitor.

3. (Amended) A frame as claimed in claim 1, the frame comprising a plurality of electrically segregated frame sections.

4. (Amended) A frame as claimed in claim 1, in which the frame is attachable to one of a thick-core, a thin-core, and a coreless substrate in one of a ceramic, a flex, and an integrated circuit printed circuit board (IC-PCB) carrier package.

5. A frame as claimed in claim 4, the package being one of a pinned grid array (PGA), and a ball grid array (BGA) carrier package.

6. A frame as claimed in claim 4, the package being one of a flip chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier package.

7. (Amended) A frame as claimed in claim 1, the frame substantially made of one of electrically conductive, insulating, and intermingled electrically conductive and insulating sections, is one of a molded, stamped, etched, extruded and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

8. A frame as claimed in claim 7, the sections further being thermally conductive.

9. A frame as claimed in claim 8, the frame being adapted to at least partially support a heat sink.

10. A frame as claimed in claim 8, the frame having an integrated cooling structure.

11. (Amended) A stiffener frame attachable to a perimeter of a substrate on one of a perimeter-side and die-side of the substrate to provide predetermined stiffening thereto, the stiffener frame including at least one electrical structure electrically connectable to the substrate.

12. (Amended) A frame as claimed in claim 11, where the at least one electrical structure is one of a ground wiring connection, a power wiring connection, and a capacitor.

13. (Amended) A frame as claimed in claim 11, the frame comprising a plurality of electrically segregated frame sections.

14. (Amended) A frame as claimed in claim 11, in which the frame is attachable to one of a thin-core, and a coreless substrate of a ceramic, a flex, and an integrated circuit printed circuit board (IC-PCB) carrier package, to provide predetermined stiffening thereto.

15. A frame as claimed in claim 14, the package being one of a pinned grid array (PGA), and a ball grid array (BGA) carrier package.

16. A frame as claimed in claim 14, the package being one of a flip chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier package.

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17. (Amended) A frame as claimed in claim 11, the frame substantially made of one of electrically conductive, insulating, and mixed electrically conductive and insulating sections, is one of a molded, stamped, etched, extruded and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

18. A frame as claimed in claim 17, the sections further being thermally conductive.

19. A frame as claimed in claim 17, the frame being adapted to at least partially support a heat sink.

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20. (Amended) A frame as claimed in claim 17, the frame [being] having an integrated cooling structure.

21. (Amended) A carrier package comprising:
one of a thick, a thin-core, and a coreless substrate of one of a ceramic, a flex, and an integrated circuit printed circuit board (IC-PCB) package; and
perimeter frame attachable to a perimeter of a substrate on one of a perimeter-side and a die-side of the substrate, the perimeter frame including at least one electrical structure electrically connectable to the substrate.

22. (Amended) A carrier package as claimed in claim 21, where the at least one electrical structure is one of a ground wiring connection, a power wiring connection, and a capacitor.

23. (Amended) A carrier package as claimed in claim 21, comprising a plurality of electrically segregated frame sections.

24. A carrier package as claimed in claim 21, the package being one of a pinned grid array (PGA), and a ball grid array (BGA) carrier package.

25. A carrier package as claimed in claim 21, the package being one of a flip chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier package.

26. (Amended) A carrier package as claimed in claim 21, the frame substantially made of one of an electrically conductive, insulating, and intermingled electrically conductive and insulating sections, and is one of a molded, stamped, etched, extruded and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

27. A carrier package as claimed in claim 26, the sections further being thermally conductive.

28. A carrier package as claimed in claim 26, the frame being adapted to at least partially support a heat sink.

29. A carrier package as claimed in claim 26, the frame having an integrated cooling structure.

30. (Amended) A carrier package comprising:
one of a thin-core, and a coreless substrate of one of a ceramic, a flex, and an IC-PCB package; and

a stiffener frame attached to a perimeter of the substrate on one of a perimeter-side and die side of the substrate to provide predetermined stiffening thereto, the stiffener frame including at least one electrical structure electrically connectable to the substrate.

31. (Amended) A carrier package as claimed in claim 30, where the at least one electrical structure is one of a ground wiring connection, a power wiring connection, and a capacitor.

32. (Amended) A carrier package as claimed in claim 30, the frame comprising a plurality of electrically segregated frame sections.

33. A carrier package as claimed in claim 30, the package being one of a pinned grid array (PGA), and a ball grid array (BGA) carrier package.

34. A carrier package as claimed in claim 30, the package being one of a flip chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier package.

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35. (Amended) A carrier package as claimed in claim 30, the frame substantially made of one of an electrically conductive, insulating, and intermingled electrically conductive and insulating sections, and is one of a molded, stamped, etched, extruded and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

36. A carrier package as claimed in claim 35, the sections further being thermally conductive.

37. A carrier package as claimed in claim 35, the frame being adapted to at least partially support a heat sink.

38. A carrier package as claimed in claim 35, the frame having an integrated cooling structure.

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39. (Amended) A packaged integrated circuit (IC) comprising:
one of a ceramic, flex, and an integrated circuit printed circuit board (IC-PCB) carrier package including one of a thick, thin-core, and coreless substrate; and
a perimeter frame attached to a perimeter of the substrate on one of a perimeter-side and a die-side of the substrate, the perimeter frame including at least one electrical structure electrically connectable to the substrate.

40. (Amended) A packaged IC as claimed in claim 39, where the at least one electrical structure is one of a ground wiring connection, a power wiring connection, and a capacitor.

41. (Amended) A packaged IC as claimed in claim 39, the frame comprising a plurality of electrically segregated frame sections.

42. A packaged IC as claimed in claim 39, the package being one of a pinned grid array (PGA), and a ball grid array (BGA) carrier package.

43. A packaged IC as claimed in claim 39, the package being one of a flip chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier package.

44. (Amended) A packaged IC as claimed in claims 39, the frame substantially made of one of an electrically conductive, insulating, and intermingled electrically conductive and insulating sections, is one of a molded, stamped, etched, extruded and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

45. A packaged IC as claimed in claim 44, the sections further being thermally conductive.

46. A packaged IC as claimed in claim 44, the frame being adapted to at least partially support a heat sink.

47. A packaged IC as claimed in claim 44, the frame having an integrated cooling structure.

48. (Amended) A packaged integrated circuit (IC) comprising:
one of a ceramic, flex, and an integrated circuit printed circuit board (IC-PCB) carrier package including one of a thick, thin-core, and coreless substrate; and
a stiffener frame attachable to a perimeter of a substrate on one of a perimeter-side and die-side of the substrate to provide predetermined stiffening thereto, the stiffener frame including at least one electrical structure electrically connectable to the substrate.

49. (Amended) A packaged IC as claimed in claim 48, where the at least one electrical structure is one of a ground wiring connection, a power wiring connection, and a capacitor.

50. (Amended) A packaged IC as claimed in claim 48, the frame comprising a plurality of electrically segregated frame sections.

51. A packaged IC as claimed in claim 48, the package being one of a pinned grid array (PGA), and a ball grid array (BGA) carrier package.

52. An packaged IC as claimed in claim 48, the package being one of a flip chip pin grid array (FC-PGA), and a flip chip ball grid array (FC-BGA) carrier package.

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53. (Amended) A packaged IC as claimed in claim 48, the frame substantially made of an electrically conductive, insulating, and intermingled electrically conductive and insulating sections, is one of a molded, stamped, etched, extruded and deposited frame, and is capable of withstanding temperatures of at least normal IC operation.

54. A packaged IC as claimed in claim 53, the sections further being thermally conductive.

55. A packaged IC as claimed in claim 53, the frame being adapted to at least partially support a heat sink.

56. A packaged IC as claimed in claim 53, the frame having an integrated cooling structure.

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57. (Amended) A method for providing electrical function from a perimeter of a substrate to a die-side of a die mountable in the substrate, comprising:

providing an external power connection to a perimeter frame attached to perimeter of the substrate,

conducting along an electrical path through the perimeter frame, through a perimeter frame-substrate interface, through the substrate, and through a substrate-die interface, to the die.

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58. (Amended) A method as claimed in claim 57, where the external power connection is one of power and ground connection.

59. A method as claimed in claim 57, where the perimeter frame also provides stiffening support.

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60. (Amended) A method for providing power from a perimeter of a substrate to a die-side of a die mountable on the substrate, comprising:

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providing a perimeter frame having a predetermined capacitance attached to perimeter of the substrate,

providing an electrical connection through the perimeter frame capacitance, through a perimeter frame substrate interface, through the substrate, and through a substrate-die interface, to the die.

61. (Amended) A method as claimed in claim 60, where the electrical power connection is one of power and ground connection.

62. A method as claimed in claim 60, where perimeter frame capacitance also provides stiffening support.

REMARKS

By the present amendment, claims 1-4, 7, 11-14, 17, 20-23, 26, 30-32, 35, 39-41, 44, 48-50, 53, 57-61 are amended.